

WHAT IS CLAIMED IS:

1. A power supply for providing charge to a load from a first battery and a second battery, comprising:

a first power switch coupled to the first battery and the load;  
a second power switch coupled to the second battery and the load; and  
a power controller coupled to said first power switch, said second power switch, and the load, said power controller providing charge from the first battery to the load by closing said first power switch and providing charge from the second battery to the load by closing said second power switch;

wherein said power controller monitors a load voltage on the load and causes an increased charge to be supplied to the load when said load voltage is less than a predetermined voltage by increasing the amount of time that at least one of said first power switch or said second power switch is closed.

2. The power supply of claim 1, wherein said power controller causes a decreased charge to be supplied to the load when said load voltage is greater than said predetermined voltage by increasing the amount of time that at least one of said first power switch or said second power switch is opened.

3. The power supply of claim 1, further comprising:  
a first inductor coupled to the first battery and said first power switch; and  
a second inductor coupled to the second battery and said second power switch;

wherein a charge from the first battery accumulates on said first inductor when said first power switch is open and is discharged to the load when said first power switch is closed, and wherein a charge from the second battery accumulates on said second inductor when said second power switch is open and is discharged to the load when said second power switch is closed.

4. The power supply of claim 1, wherein said power controller controls said first and second power switch to open and close in an alternating fashion, thereby supplying charge to the load from only one battery at a time.

5. The power supply of claim 1, wherein said power controller determines an amount of charge that has been supplied from the first and second batteries.

6. The power supply of claim 5, wherein said power controller further comprises:

a plurality of counters adapted to determine an amount of time said first power switch has been closed and an amount of time said second power switch has been closed;

wherein said power controller determines an amount of charge that has been supplied from the first battery based on said amount of time said first power switch has been closed and determines an amount of charge that has been supplied from the second battery based on said amount of time said second power switch has been closed.

7. The power supply of claim 5, wherein said power controller controls the opening and closing of said first and second power switch to ensure that the discharging of the first battery and the second battery occurs at an equal rate.

8. The power supply of claim 5, wherein said power controller stops supplying charge to the load from the first battery when the first battery is depleted and stops supplying charge to the load from the second battery when the second battery is depleted.

9. The power supply of claim 5, wherein said power controller increases the amount of charge supplied to the load from the first battery when the second battery is depleted and increases the amount of charge supplied to the load from the second battery when the first battery is depleted.

10. The power supply of claim 5, wherein said power supply further comprises:

a display;

wherein said display is adapted to provide information to a user about the amount of charge remaining in the first and second batteries.

11. A power supply for providing a charge to a first battery and a second battery from a charge source, comprising:

a first power switch coupled to the first battery and the charge source;

a second power switch coupled to the second battery and the charge source; and

a power controller coupled to said first power switch and said second power switch, said power controller selectively providing a charge from the charge source to either the first battery or the second battery by closing said first power switch or said second power switch, respectively.

12. A power supply for providing a charge to a first battery and a second battery from a charge source, comprising:

a first power switch coupled to the first battery and the charge source;

a second power switch coupled to the second battery and the charge source; and

a power controller coupled to said first power switch and said second power switch, said power controller providing charge from the charge source to the first battery by closing said first power switch and providing charge from the charge source to the second battery by closing said second power switch;

wherein said power controller determines an amount of charge remaining in the first and second battery and causes an increased charge to be supplied to the first battery when said charge remaining on the first battery falls below a first predetermined level by increasing an amount of time that said first power switch is closed and causes an increased charge to be supplied to the second battery when said charge remaining on the second battery falls below a second predetermined level by increasing an amount of time that said second power switch is closed.

13. A power supply for supplying charge to a load from a plurality of batteries, comprising:

a plurality of power switches, wherein each of said plurality of power switches is coupled to one of the plurality of batteries and to the load; and

a power controller coupled to said plurality of power switches;

wherein said power controller controls each of said plurality of power switches to regulate the amount of charge supplied to the load from a corresponding one of the plurality of batteries.

14. The power supply of claim 13, wherein each of the plurality of batteries comprises a battery cell.

15. The power supply of claim 13, wherein said power controller is also coupled to the load, and wherein said power controller further comprises:

a comparator that compares the load voltage with a predetermined voltage amount;

wherein said power controller controls at least one of said plurality of power switches to provide a charge to the load from at least one of the plurality of batteries when said load voltage is less than said predetermined voltage amount.

16. The power supply of claim 15, wherein said power controller further comprises:

a selector that selects one of the plurality of batteries as a charge source;  
wherein said power controller controls the power switch coupled to said selected battery to provide charge from said selected battery to the load.

17. The power supply of claim 13, wherein said power controller further comprises:

a plurality of counters that track an amount of charge provided by each of the plurality of batteries.

18. The power supply of claim 13, wherein the power supply power supply is implemented on the same chip as the load.

19. The power supply of claim 13, wherein said power supply further comprises:

a plurality of inductors, wherein each of said plurality of inductors is coupled between each of the plurality of batteries and a corresponding one of said plurality of power switches;

wherein a charge accumulates on each of said plurality of inductors when the power switch coupled to said inductor is open and wherein said charge is discharged to the load when the power switch coupled to said inductor is closed.

20. A power supply for supplying charge to a plurality of batteries from a charge source, comprising:

a plurality of power switches, wherein each of the plurality of power switches is coupled to the charge source and to one of the plurality of batteries;  
and

a power controller coupled to said plurality of controlled power switches;  
wherein said power controller controls said power switches to regulate the amount of charge supplied to the plurality of batteries from the charge source.

21. A method for supplying charge to a load from a plurality of batteries, comprising the steps of:

- monitoring a load voltage across the load;
- comparing said load voltage to a predetermined voltage;
- selecting one of the plurality of batteries;
- controlling a switch to permit a charge to flow from said selected battery to the load for a time interval when said load voltage is less than said predetermined voltage.

22. The method of claim 21, further comprising the step of:  
determining the amount of charge provided by said selected battery.

23. The method of claim 21, further comprising the step of:  
determining the amount of charge sent to the load by said selected battery.

24. The method of claim 21, wherein said controlling step further comprises:

- storing a charge from said selected battery in an inductor; and
- releasing said stored charge from said inductor to the load.

25. A method for supplying charge to a load from a plurality of batteries, comprising the steps of:

- monitoring a load voltage across the load;
- comparing said load voltage to a predetermined voltage;
- selecting one of the plurality of batteries;
- controlling a switch to permit a quantity of charge to flow from said selected battery to the load when said load voltage is less than said predetermined voltage.